SIEMENS

MULTISPOT 2000

SP

Setting Instructions

Video frequency and exposure parameters

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English

Print No.: RX57-091.032.01.02.02

Doc.generation Date: 05.96

Replaces: RX57-091.032.01.01.02

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Setting Instructions

Devices affected

• MULTISPOT 2000 1-4 / URK-D	44 63 345 RHR12	(new supply)
• MULTISPOT 2000 1-4 ab Ser.Nr. ...10567	30 14 078 GE888	
• MULTISPOT 2000 2 / SM 2000	44 66 017 RHR12	(new supply)
• MULTISPOT 2000 2 / SM 2000	30 14 037 GE888	Rep replacement

Tools and materials required

• Densitometer X-Rite 331	97 02 416 Y1994
• Service tools	see ARTD, Part 3
• Test image similar to SMPTE from the imaging X-ray system	

Documents required

• MULTISPOT 2000 Operating Instructions	RR2-120.203.02...
• MEMOSKOP Service Instructions	RX57-029.061.01...

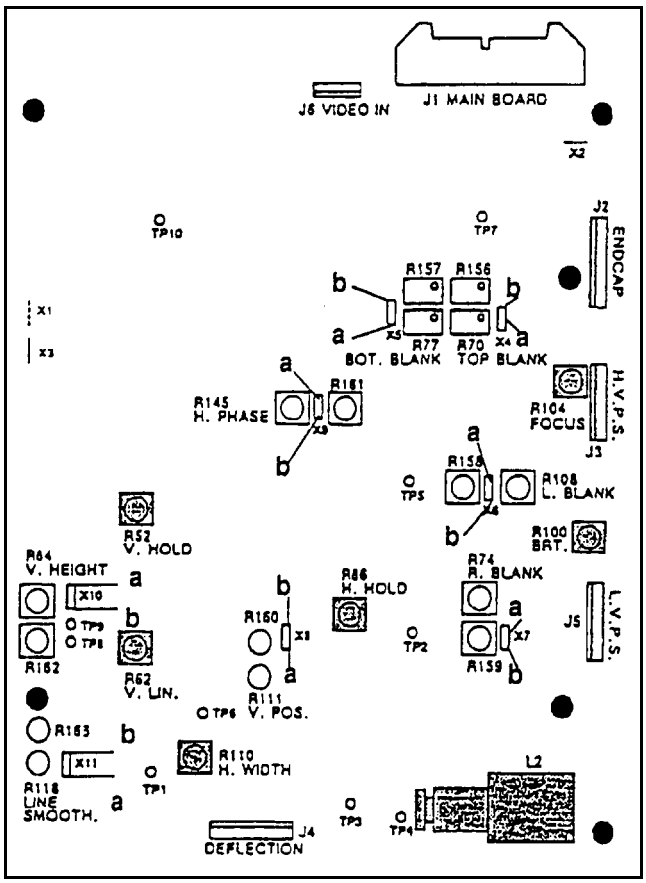
Conversion of the video frequency from 50 to 60 Hz

Multiformat cameras for spare parts deliveries and retrofitting are programmed for 50 Hz video frequency in the factory.
In countries in which the X-ray systems are set with a 60 Hz video frequency, the MULTISPOT 2000 must therefore be converted to 60 Hz before installation.

Sequence of work

- Disconnect the system from the power supply.
- Open the housing of MULTISPOT 2000.
  Remove 3 screws on the rear of the camera for this purpose.
- Change over the jumpers X4 to X11 into the corresponding position on the monitor board according to the table below.
- Close the housing again and install MULTISPOT 2000 in the trolley.

Jumper	Position with:	
	50 Hz	60 Hz
X4	b	a
X5	b	a
X6	b	a
X7	b	a
X8	b	a
X9	b	a
X10	b	a
X11	b	a



Setting the exposure parameters

Reason

The exposure parameters to be programmed depend on various influences (e. g. film processing, film type ...).

Therefore, the values set in the factory (for KODAK EKTASCAN NB) and, e. g. the values for the SIREMOBIL 2000 included in the Start-up Instructions RR2-120.034.01. and in the test certificate RR2-120.037.03... apply only as estimated values.

Prior to handing the X-ray system over to the customer, an individual adaptation to the needs of the customer is mandatory.

If a multiformat camera is used in different places of application (e. g. large hospitals with several film processors or with demonstration systems), the exposure parameters must be adapted to the local conditions individually in each case. The values can be saved under "USER 1" to "USER 8" and can be retrieved, if necessary (see Operating Instructions MULTISPOT 2000, RR2-120.203.02...).

Standard setting (preliminary setting)

- Call up the stored test image according to the MEMOSKOP Service Instructions RX57-029.061.01... .
- Set LUT to position 1.
- Allow 20-minute camera warm-up time.
- Call up the selection level by pressing the "PROG" key to select the different menus and exposure parameters.
  - In addition to the indication, a cursor ">" is shown in the display (Ex.: ">FMT4 USR1 NEG").
  - For selection, you can move the cursor to the desired function of menu group 1 using the arrow keys "< / b" (Ex.: "IMG1/4 >USR1 NEG") and at the same time switch over to the second menu group "Exposure parameters" (Ex.: ">B019 C550 D026").
  - You can modify the functions and parameters using keys "+/–".
- Position the cursor ">" before the "Image subdivision/Format" indication and select the desired parameter with "+/–" (Ex.: ">FMT4 USR1 NEG").
- Position the cursor ">" before the "LUT table/User group" indication and select the desired parameter with "+/–" (Ex.: "FMT4 >USR1 NEG").
- Position the cursor ">" before the "Image display (POS/NEG)" indication and select the desired parameter with "+/–" (Ex.: "FMT4 USR1 >POS").
- Change over to the selection level of the exposure parameters using arrow key "<" and position the cursor before the relevant function B... for brightness, C... for contrast and D... for density (Ex.: ">B019 C550 D026").
- Set the parameters B... , C... and D... using "+/–" according to the following standard setting table:

	Image display, positive				Image display, negative			
	B Brightness	C Contrast	D Density		B Brightness	C Contrast	D Density	
			50 Hz	60 Hz			50 Hz	60 Hz
Multispot 2000 1-4 Full-format image	008	550	035	042	020	660	035	042
Multispot 2000 1-4 4-on-1 image	008	550	016	019	020	660	016	019
Multispot 2000 2	008	550	021	025	020	660	021	025

Table Standard setting

- Release one test image in each operating mode and develop the film.
- Enter the film type used and its emulsion number here:

  Film type: _____ Emulsion No.: _____

- Enter the measured density values of the test images in the relevant tables on the following pages.
- Readjust or adapt "B" in case of a deviation from the nominal value 3 (40% density, see stored test image).

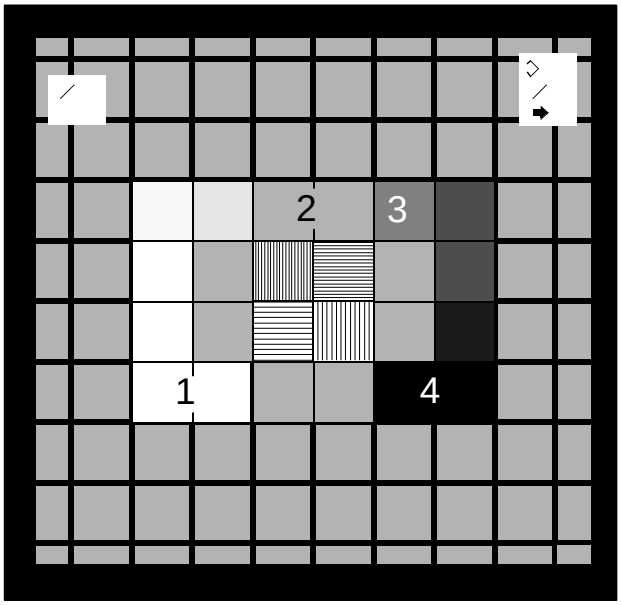
Final setting of multiformat camera

This setting must be carried out in all image subdivisions available with the positive and negative image display desired by the customer. Settings not carried out must be indicated by **n. a.** in the relevant table.

- Call up the stored test image.
- Allow 20-minute camera warm-up time.
- Set LUT to position 1.
- Start the setting with the B, C, and D values from the above standard setting table.
- Select the image subdivision to be tested.
- Release a test exposure after each modification of the density values and develop the film.
- Enter the film type used and its emulsion number here:

  Film type: _____ Emulsion No.: _____

- Select the image display to be tested (positive/negative).



1 = 100%

2= 50%

3= 40%

4= 0%

Stored test image (test image similar to SMPTE)

- Alter value B (brightness) until the 40% gray level (Fig. above, stored test image) has attained the nominal density value D_{nom} (see following tables).
- Alter value C (contrast) until the density values for white and black correspond to the nominal values (see following tables).
  Please note that the 100% and 90% fields and the 0% and 10% fields must be distinguishable when increasing the contrast values (C).
- Develop the test exposures and measure with a densitometer.

Customer-specific setting

If the customer does not accept the image density, the contrast values "C" and the brightness values "B" can be changed.
For this, a MEMOSKOP X-ray exposure of optimum quality should be used.

- Release several test exposures.
  - For each test exposure increase the contrast until the darkest and the brightest image information is still just visible.
  - If necessary, change the brightness "B" of the test exposure such that the image information is reduced neither in white nor in black.
- Call up the MEMOSKOP test image (see above) after satisfactory setting of the values and enter the density values into the relevant lines of the tables on the following page:

Density values for MULTISPOT 2000-2 and 2000 1-4 for full-format image and negative image display:

Field	Density/nominal (D_{nom})	Density/actual (D_{act})	Programmed values	
0% (1)	≤ 025	_____	B	_____
40% (2)	1.0 ±0.1	_____	C	_____
100% (3)	≥ 2.5	_____	D	_____

Density values for MULTISPOT 2000-2 and 2000 1-4 for full-format image and positive image display:

Field	Density/nominal (D_{nom})	Density/actual (D_{act})	Programmed values	
0% (1)	≥ 2.4	_____	B	_____
40% (2)	1.3 ±0.1	_____	C	_____
100% (3)	≤ 0.25	_____	D	_____

Density values for MULTISPOT 2000 1-4 for 4-on-1 image and negative image display:

Field	Density/nominal (D_{nom})	Density/actual (D_{act})	Programmed values	
0% (1)	≤ 0.25	_____	B	_____
40% (2)	1.0 ±0.1	_____	C	_____
100% (3)	≥ 2.5	_____	D	_____

Density values for MULTISPOT 2000 1-4 for 4-on-1 image and positive image display

Field	Density/nominal (D_{nom})	Density/actual (D_{act})	Programmed values	
0% (1)	≥ 2.4	_____	B	_____
40% (2)	1.3 ±0.1	_____	C	_____
100% (3)	≤ 0.25	_____	D	_____

Amendments compared with the previous version

All	Revision level increased and date adapted
Page 2	Affected systems updated

TD SP 2 / Braun

TD SP 1 / Schlee

AUT 98 / Carver